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ures are added to facilitate the location of the section planes.

Timely emphasis is given to the (B N A) nomenclature, and it is hoped that this may hasten its wider adoption. The volume as a whole should prove useful to the student and will no doubt aid teachers in formulating courses in neurology. The typography and press-work are to be commended.

G. CARL HUBER.

SCIENTIFIC JOURNALS AND ARTICLES.

Journal of Physical Chemistry. May. 'Synthetic Analysis in Ternary Systems,' by A. W. Browne. This is the description of several experimental applications of Bancroft's new method for analyzing the solid phase appearing in three component systems without removing it from the mother liquor. 'On Indifferent Points,' by Paul Saurel. 'Studies in Vapor Composition, II,' by H. R. Carveth. A study of simple experimental methods discovered by the application of the phase rule. 'Note on the Optical Rotatory Power of Cane-sugar when Dissolved in Amines,' by Guy Maurice Wilcox. In such solutions sugar is found to have a much higher specific rotatory power than in water.

June. 'The Rate of the Reaction between Arsenious Acid and Iodin in Acid Solutions; the Rate of the Reverse Reaction; and the Equilibrium between Them,' by J. R. Roebuck. An experimental study of the law of the rates at which chemical reactions take place in homogeneous systems. 'On the Triple Point,' by Paul Saurel. 'On the Theorem of Tammann,' by Paul Saurel. 'Experiments on the Electrolytic Reduction of Potassium Chlorate,' by G. H. Burrows.

The Journal of Comparative Neurology for September contains a memoir of 85 pages and two plates by Professor G. E. Coghill, of Pacific University, entitled 'The Cranial Nerves of *Amblystoma tigrinum*,' in which the components of the cranial and first two spinal nerves are described in detail and plotted after microscopic reconstruction. This is followed by an exhaustive comparative discussion of these nerves in the light of other Urodela.

SOCIETIES AND ACADEMIES.

RESEARCH CLUB OF THE UNIVERSITY OF MICHIGAN.

THE first meeting of the club was held on the evening of October 8. Mr. Alfred H. White gave the first paper, speaking on the 'Theory of the Incandescent Mantle.'

Data were presented of temperature measurements made upon two kinds of mantles. A pure thoria mantle attained a temperature of 1510° C. and its illuminating value was 1.2 candle power. A mantle with one half per cent. ceria showed a temperature more than one hundred degrees lower and gave thirteen times the light. The conclusion was drawn that the illumination of a mantle was to a greater extent dependent upon the composition of the mantle than upon the temperature. This opposes the conclusions of Le Chatelier and Nernst, who hold that the thoria-ceria mantle attains a higher temperature than a mantle of any other material, and that this causes the unusual illumination. The theory was advanced that the substance of the mantle was a solid solution of ceria in thoria which was capable of transforming the heat of the flame into light more economically than any other substance yet known.

Professor F. Haber, of the Karlsruhe Polytechnicum, who was present as a guest, said that investigations as yet unpublished, conducted by his colleagues Bunte and Eitner, had established the same fact, that a mantle of pure thoria attained a higher temperature but gave less light than one of the usual thoria-ceria mantles.

The second paper was given by Dr. Huber, and represented work done in his laboratory by himself and Mr. Adamson on the 'Morphology of the Sudoriparous and Allied Glands.'

The observations presented were based on models made after the Born plate reconstruction method. The glands reconstructed included ordinary sudoriparous glands, glands from the circumanal and axillary regions, ceruminous glands and glands of Moll. The tubule constituting the coiled portions of the sudoriparous glands studied varies in length from 4.25 mm. to 10 mm., the excretory duct forming one fourth to about one half of its length. The end of the secretory portion of

the tubule is situated near the duct as it enters the coil. Models from embryonic glands show that the coiled portion of the sudoriparous glands is developed by a folding and knuckling of the tubule, after the first loop is formed. In the circumanal region are found four quite distinct types of sweat glands: (1) Ordinary sudoriparous glands; (2) the large circumanal glands of Gay; (3) branched tubulo-alveolar glands; (4) a modification of type 3. A large axillary gland reconstructed consists of a single tubule measuring 30 mm. in length, much coiled and folded. In this region are also found branched tubulo-alveolar sweat glands. The glands of Moll are tubulo-alveolar glands, with relatively short but large secreting tubules presenting quite regular alternate enlargements and constrictions, from which arise a relatively small number of short tubules ending in large saccular alveoli. The ceruminous glands are similar to the glands of Moll.

FREDERICK C. NEWCOMBE,
Secretary.

DISCUSSION AND CORRESPONDENCE.

A QUESTION OF TERMINOLOGY.

IN his review in *Torrey* of the writer's recent university text-book, Professor L. M. Underwood criticizes severely the use of the termination 'ales' in class names, the special case cited being 'Anthocerotales,' which was used in conformity with the termination 'ales,' employed in the classes of the Pteridophytes, *e. g.*, 'Filicales.' Professor Underwood says: 'The name [Anthocerotes] is changed to *class* Anthocerotales, thus improperly using a termination reserved for a group of ordinal rank alone.'

Without referring to other botanists who have also sinned against Professor Underwood's rule, we should like to ask him to explain certain apparent inconsistencies of his own in this connection.

In the sixth edition (1900) of his little manual of the fern-allies, Professor Underwood uses (p. 65) the same names (Filicales, etc.) to indicate the primary divisions of the Pteridophytes that the writer does in the text-book criticized. Professor Underwood, however, calls these *orders* and not *classes* as they

are usually considered to be. Looking for the corresponding class names, we find that Professor Underwood does not, apparently, recognize any classes of Pteridophytes, although he ranks the group as a whole as one of the four subkingdoms of plants. It certainly is not customary among either botanists or zoologists to consider the primary divisions of a subkingdom as of ordinal rank, and it is not quite plain how the employment of the termination 'ales' is sufficient to convert a recognized *class* into an *order*. All of the standard authorities consulted (*e. g.*, Coulter, Sachs, Scott, Warming, Van Tieghem, Vines) agree in calling the Filicales (or Filicinæ) a class; what reason Professor Underwood can give for reducing them to an order is not clear. He can scarcely claim that his 'order' Filicales is of equal rank with the order Marchantiales, for example.

Moreover, Professor Underwood is not as clear as he might be in distinguishing families and orders. Thus, on page 63 we find *order* Equisetaceæ, *order* Calamariaceæ; on page 65, *order* Equisetales; on page 126, *family* Equisetaceæ. A similar confusion is evident in the discussion of the classification of the other subkingdoms (pp. 56-58). Algæ and Fungi are divided into 'classes'; Bryophytes into 'groups'; Pteridophytes into 'orders'!

Perhaps Professor Underwood, as a professed systematist, will explain the principles upon which his classification is based.

DOUGLAS HOUGHTON CAMPBELL,
STANFORD UNIVERSITY.

THE EXPANSION OF A GAS INTO A VACUUM AND THE KINETIC THEORY OF GASES.

IN number 406 of this journal (for October 10) Mr. R. W. Wood calls attention to the fact that the subject of a communication presented by me before the chemical section of the American Association for the Advancement of Science at the last meeting and of which communication an abstract* under the

* The abstract was made without my knowledge and, although it is not bad, there are some loose statements in it. The full article will shortly appear in the *Journal of Physical Chemistry*.